

PATENT SPECIFICATION

NO DRAWINGS

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1192.021



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SPECIFICATION NO 1192021

In accordance with the Decision of the Superintending Examiner, acting for the Comptroller-General, dated 11 March 1974 this Specification has been amended under Section 14 in the following manner:—

Page 1, line 16, Page 2, line 107, *after medium insert*, the amount of the perspirant agent in the composition being not more than 25% by weight

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THE PATENT OFFICE
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20 by aluminium chlorhydrate. Compositions of the invention containing aluminium chlorhydrate as the antiperspirant agent have the advantage over conventional antiperspirant products, which are generally aqueous solutions of aluminium chlorhydrate, of being quick-drying and relatively non-tacky in use; the conventional systems are generally slow drying and unpleasantly tacky while drying.

25 Alcohol-soluble complexes of aluminium chlorhydrate are also tacky in use.

The compositions of the invention include a normally liquid volatile medium, that is to say, a medium that is liquid at room temperature and at normal pressure, and this is what is meant by the term "a normally liquid volatile medium". It is well-known in the art that volatile liquids may be used in antiperspirant compositions as a medium for the antiperspirant agent and it is a known general requirement of such liquids that they should be volatile enough to evaporate readily when the composition is applied to the skin, but not so volatile that they undergo substantial evaporation from the composition when it is

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products which are substantially non-tacky in use. Particularly preferred are products in which no water has been included as such so that any water present in the volatile medium arises solely from the small amounts of water that may be present in the commercial materials used in the formulation of the antiperspirant composition; these products will usually contain less than 3.5% by weight of water in the volatile medium.

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The thickener may be any material that will form viscous or gelled solutions or suspensions with the substantially anhydrous volatile liquid, and in particular cellulose derivatives may be employed, for example the hydroxypropyl cellulose derivative sold by the Hercules Powder Company Ltd. under the trade name "Klucel M". This material in addition to acting as a thickening and suspending agent also helps to bind the powdered antiperspirant agent to the skin in the form of a film when the product dries. Other film-forming agents may also be added.

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The amount of the antiperspirant agent included in the composition in accordance with

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COMPLETE SPECIFICATION

Antiperspirant Composition

We, UNILEVER LIMITED, a company registered under the laws of Great Britain, of Port Sunlight, Birkenhead, Cheshire, England, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an antiperspirant composition.

According to the invention there is provided a fluid antiperspirant composition comprising a suspension of finely-divided antiperspirant agent in a thickened, normally liquid, volatile, substantially anhydrous medium. The antiperspirant agent is preferably aluminium chlorhydrate. Compositions of the invention containing aluminium chlorhydrate as the antiperspirant agent have the advantage over conventional antiperspirant products, which are generally aqueous solutions of aluminium chlorhydrate, of being quick-drying and relatively non-tacky in use; the conventional systems are generally slow drying and unpleasantly tacky while drying. Alcohol-soluble complexes of aluminium chlorhydrate are also tacky in use.

The compositions of the invention include a normally liquid volatile medium, that is to say, a medium that is liquid at room temperature and at normal pressure, and this is what is meant by the term "a normally liquid volatile medium". It is well-known in the art that volatile liquids may be used in antiperspirant compositions as a medium for the antiperspirant agent and it is a known general requirement of such liquids that they should be volatile enough to evaporate readily when the composition is applied to the skin, but not so volatile that they undergo substantial evaporation from the composition when it is

stored at room temperature and normal pressure in a container such as a roll ball applicator. Such volatile liquids are thus distinguished from the volatile liquefied gases used as propellants in aerosol compositions. Although a wide range of volatile liquids may be used in antiperspirant compositions in accordance with the invention, lower (C_1 — C_4) aliphatic alcohols and in particular ethanol, isopropanol or industrial methylated spirit (perfumery grade) are preferred.

By a "substantially anhydrous" medium, it is meant that the amount of water present in the medium is at most 7% by weight of the composition. Preferably, the amount of water present is less than 4% by weight giving products which are substantially non-tacky in use. Particularly preferred are products in which no water has been included as such so that any water present in the volatile medium arises solely from the small amounts of water that may be present in the commercial materials used in the formulation of the antiperspirant composition; these products will usually contain less than 3.5% by weight of water in the volatile medium.

The thickener may be any material that will form viscous or gelled solutions or suspensions with the substantially anhydrous volatile liquid, and in particular cellulose derivatives may be employed, for example the hydroxypropyl cellulose derivative sold by the Hercules Powder Company Ltd. under the trade name "Klucel M". This material in addition to acting as a thickening and suspending agent also helps to bind the powdered antiperspirant agent to the skin in the form of a film when the product dries. Other film-forming agents may also be added.

The amount of the antiperspirant agent included in the composition in accordance with

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the invention is preferably from 5 to 25% by weight.

- To improve the stability of the antiperspirant composition of the invention there may be included therein very finely-divided or colloidal inert solids, for example silicas. Lubricants may also be added with advantage to improve the "feel" of the product on the skin and to promote the dispensing of the product from an applicator such as a "roll-ball" applicator. Typical lubricants that are suitable are saturated or unsaturated fatty alcohols, particularly those having from 10 to 20 carbon atoms, for example oleyl alcohol; glycols and polyols particularly those having from 2 to 12 carbon atoms, for example propylene glycol; polyalkylene glycols and their condensates, where the alkylene group contains from 1 to 5 carbon atoms, for example polyethylene glycols and their condensates with fatty alcohols; and fatty esters of the type $R'CO. OR''$ where R' and R'' are alkyl or substituted alkyl groups having from 1 to 20 carbon atoms at least one of which groups contain at least 12 carbon atoms, for example isopropyl myristate.

- Optional additional components may be included, for example perfume, perfume solubilisers, colouring agents, skin emollients such as lanolin and its derivatives, and germicides to give deodorant properties.

The following Examples illustrate the invention. Percentages are by weight.

EXAMPLE 1

- The following is an example of an antiperspirant composition in the form of an easily pourable thickened lotion suitable for dispensing from a "roll-ball" applicator.

Component	%
Aluminium chlorhydrate (chlorhydrol, impalpable grade)	20.0
Colloidal silica (Aerosil 2491)	4.0
Hydroxypropyl cellulose thickener (Klucel M)	1.0
Oleyl Alcohol	1.0
Benzalkonium chloride (50% aqueous solution)	0.2
Perfumery grade industrial methylated spirit	to 100.0
Colour ("Chlorhydrol", "Aerosil" and "Klucel" are trade marks)	q.s.

EXAMPLE 2

- The following is the composition of a product of similar appearance to that of Example 1 but which is rather thicker. It is suitable for dispensing from a movable-piston type applicator.

Component	%
Aluminium chlorhydrate (Chlorhydrol, impalpable grade)	10.0

Colloidal silica (Aerosil 2491)	5.0	
Hydroxypropylcellulose thickener (Klucel M)	1.5	
Propylene glycol	1.0	65
Benzalkonium chloride (50% aqueous solution)	0.2	
Perfumery grade industrial methylated spirit	to 100.0	
Colour	q.s.	70

EXAMPLE 3

The following is a further example of a composition which is also somewhat thicker than that of Example 1.

Component	%	
Aluminium chlorhydrate (Chlorhydrol, impalpable grade)	20.0	
Colloidal silica (Aerosil 2491)	5.0	
Hydroxypropylcellulose thickener (Klucel M)	1.3	80
Isopropyl myristate	1.0	
Hexachlorophene	0.2	
Absolute ethanol	to 100.0	
Denaturant, perfume, colour etc.	q.s.	85

The colloidal silica employed to improve the stability of the compositions of the above Examples, was of extremely fine particle size (primary particle size 5 to 20 milli-microns), small bulk density (40 g/l) and large surface area ($300 \pm 30 \text{ m}^2/\text{g}$).

The antiperspirant compositions of the above Examples were quick-drying and substantially non-tacky in use.

The perfumery grade industrial methylated spirit used in the compositions illustrated in Examples 1 and 2 contained about 0.9% water by weight and the amount of water contained in the aluminium chlorhydrate which passed into the alcoholic medium was about 10% by weight of the chlorhydrate.

WHAT WE CLAIM IS:—

1. A fluid antiperspirant composition comprising a suspension of finely-divided antiperspirant agent in a thickened, normally liquid, volatile, substantially anhydrous medium.

2. A composition as claimed in claim 1, wherein the antiperspirant agent is aluminium chlorhydrate.

3. A composition as claimed in claim 1 or claim 1, wherein the volatile medium is a C_1-C_4 aliphatic alcohol.

4. A composition as claimed in any of the preceding claims, wherein any water present in the medium is less than 4% by weight of the composition.

5. A composition as claimed in any of the preceding claims containing no added water.

6. A composition as claimed in any of the preceding claims, wherein the amount of the antiperspirant agent included in the composition is from 5 to 25% by weight.

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7. A composition as claimed in any of the preceding claims, wherein the composition is thickened by means of a hydroxypropyl cellulose derivative. tially as herein described with reference to any of Examples 1 to 3.

5 8. An antiperspirant composition substan-

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